Synchronous Communications Binary

A set of operating procedures for synchronous transmission used in IBM teleprocessing networks. With BISYNC, some system batch terminals automatically perform error checking on all incoming data and request retransmission of a message whenever it is not received exactly as sent. As a transmitting terminal, the system automatically retransmits messages when they are not accurately received by the remote station. Because of the reliability of data transmissions using binary synchronous methods, it becomes economical to collect and store large amounts of data at the processor using either cassettes or a mass memory subsystem and to later transmit the data to computers or terminals, including other systems.

Synchronous Data Link Control (SDLC)

An IBM communications line discipline or protocol associated with SNA. In contrast to BSC, SDLC provides for full-duplex transmissions and is more efficient.

Synchronous Transmission

A mode of data communcations by which the bit stream and character stream are slaved to accurately synchronized clocks at the receiving and transmitting stations. Start and stop pulses are not required with each character.

System

An organized collection of parts or procedures united by regulated interaction and interconnected to perform a function.

Systems Network Architecture (SNA)

The total description of the logical structure, formats, protocols, and operational sequences for transmitting information units through the communication system. Communication system functions are separated into three discrete areas; the application layer, the function management layer, and the transmission subsystem layer. The structure of SNA allows the ultimate origins and destinations of information--that is, the end users--to be independent of, and unaffected by, the specific communication-system services and facilities used for information exchange.

System Generation (SYSGEN)

The process of using an operating system to assemble and link together all of the parts that constitute another operating system.

Tariff

The published rate for a specific unit of equipment, facility, or type of service provided by a communications common carrier. Also the vehicle by which the regulating agencies approve or disapprove such facilities or services. Thus the tariff becomes a contract between customer and common carrier.

Telecommunications

Transmission of electrical signals over long distances, such as by radio, telegraph or telephone lines.

Teleprocessing

A communications system combining two technologies, data processing and telecommunications. Originally, an IBM trademark.

Telex

A generic name for the international network of teleprinter subscriber services. Western Union provides such services within the U.S. and abroad under its Telex and Telex II trademarks. International record carriers (IRC'S) are now permitted to extend their telex services to the domestic U.S.

Terminal

Hardware device connected to a computer, used for inputting and receiving data. See Dumb Terminal, Smart Terminal, Intelligent Terminal.

Time Sharing Option (TSO)

A full-function time sharing system that provides interactive computing for the large system environment. It is an integral part of MVS.

Transparency

A transmission mode in which control character recognition is "suspended", allowing any bit pattern to be transmitted without unexpected results. The rules for control code recognition are changed so that commands involving specific operations, for example, Escape sequences, are not acted upon, but simply transmitted as data. Even in transparency mode, certain commands remain active; otherwise, once in transparency mode, there would be no way to get out of it.

Token Passing

A local area network access technique in which participating stations circulatea special bit pattern (the token) that grants access to the network to each station in sequence, often used in networks with a ring topology.

Topology

The logical or physical arrangement of stations on a network in relation to one another. See ring and star.

Touch-Tone

An AT&T trademark for tone signaling equipment, which is superseding rotary dial equipment. Use of tones simplifies the switching system design and greatly expands the potential for adding features to telephone systems. It also speeds up the dialing operation for a person making a call.

Two-wire channel

A circuit containing a single wire pair (or logical equivalent) for non-simultaneous (i.e., half-duplex) two-way transmission.

Teletypewriter Exchange Service (TWX)

A switched teletypewriter service in which suitably arranged teletypewriter stations are provided with lines to a central office for access to other such stations throughout the U.S. and Canada.

Value Added Network (VAN)

A common carrier service which has been upgraded by a communication service.

Virtual Storage (VS)

The national storage space that may be regarded as addressable main storage by the user of a computer system in which virtual addresses are mapped into real addresses. The size of virtual storage is limited by the addressing scheme of the computing system and by the amount of auxiliary storage available, and not by the actual number of main storage locations.

Virtual Storage Access Method (VSAM)

An access method for direct or sequential processing of fixed and variable-length records on direct access devices. The records in a VSAM data set or file can be organized in logical sequence by a key field (key sequence), in the physicalsequence in which they are written on the data set or file (entry-sequence), orby relative-record number.

Virtual Telecommunications Access Method/Network Control Program (VTAM/NCP)

A set of programs that control communication between terminals and application programs running under DOX/VS, OS/VS1, AND OS/VS2.

Voice-grade Channel

A channel with bandwidth equivalent to a telephone line obtained through the public telephone network. The maximum potential bandwidth of a voice-grade channel is approximately 20K hertz; however, most voice-grade channels in a transmission facility are usually spaced 4000 Hz apart, and not all of the bandwidth is generally available to a user due to the presence of noise-limiting loading coils; the telephone network itself is usually defined in terms of channels with frequencies of from 300 Hz to 3400 Hz.

V.21

300 bps duplex modem standard for use on the general switched network

V.22

1200 bps duplex modem standard for use on the general switched telephone network and on leased circuits.

V.23

600/1200 bps modem standard for use on the general switch network

V.24 CCITT equivalent to EIA RS-232C standard

Wideband channel

Referring or pertaining to an analog circuit that provides more bandwidth than a voice-grade telephone line, i.e., a circuit that operates at a frequency of 20K Hz or greater. Wideband (also known as broadband) channels are used for high-speed voice and data communications, radio and television broadcasting, some local area data networks, and many other services.

Workstation

An intelligent terminal.

X.3

Packet Assembly/Disassembly facility (PAD) in a public data network

X.21

Interface between DTE and DCE equipment for synchronous operation on public data networks.

X.25

A protocol developed by CCITT, the standards writing organization for international telephone carriers, for packet swtiching procedures (governing the exchange of data units between the public data network and the user).

IBM by the Numbers

Series 1 Minicomputer Model 495X, 32K-512K,
System 23 Datamaster / 8086 Microprocessor 64K-128K
System/34

General purpose minicomputer system for all types of smaller businesses. Uses the SSP operating system. Supports the 5250 Information Display System family of terminal and printers in local and remote environments. BSC or SDLC communications is supported. Supports programming in RPG II, COBOL, and BASIC.

System/36 General Purpose minicomputer
System/38

Multi-user, general purpose SP sytem with a virtual design. Uses the CPF operating system. Supports the 5250 Information Display System family of terminals and printers in local and remote environments. Only SDLC data communications is supported. Supports programming in RPG and COBOL.

360 Mainframe Computer
370 Mainframe Computer

Models 138, 148, 158, 168, 195

XT/370 Mainframe in a micro box 68000 & 8088
650 Discontinued Mainframe
1401 Discontinued Mainframe
1403 Printer
1443 Printer
2250 Display Unit
2550 Single Cluster Feature
2551 Dual Cluster Feature
2704 Discontinued Front End Processor
2770 Bisync batch workstation
2780 Bisync batch workstation

303X (1,2,3) Maniframe

Full range of high performance processor for large system environements with 2-32 MB processor storage. 5 - 2 block multiplexor channels.

308X (1,3,4) IBM's largest series of processors

3178 Display Station Models C1, C2 - Less expensive 3278
3179 Display Station - cheaper 3279 type color display
3180 Display Station
3203 Line Printer, up to 1200 lpm
3211 Line Printer, up to 2000 lpm
3230 Dot Matrix Printer, up to 350 cps
3262 Line Printer, Model 1,5 - 650 lpm, Model-11 325 lpm
3268 Printer 340 cps
3270 PC - Communications Terminal & computer
3271 Bisync cluster controller

Device Control Unit - a controller for the 3270 Information Display System family of displays and printers (type B devices).

Models:

1 - 480-character buffer/BSC line control
2 - 1920-character buffer/BSC line control
3 - 480-character buffer/SDLC line control
4 - 1920-character buffer/SDLC line control

Features:

Remote cluster - up to 32 devices attachable
Line speed up to 7200 bps for BSC (9600 via RPQ)
Line speed up to 9600 bps for SDLC

3272 Device Control Unit (type B devices)

Models:

1 - 480-character buffer
2 - 1920-character buffer

Features:

Local cluster - up to 32 devices attachable
Data transfer to channel up to 650,000 bps

3274 Models 21A, 21B, 21D, 31A, 41A, 41D (local)

Floor standing Cluster Controller

3274 51C, 61C Models A,B,C,D

Model 51C - Features Attaches up to eight type A and four type B devices. Supports full range of 3270 display and printer products.

3275 Bisync workstation, terminal and printer
3276 SNA cluster controller and terminal
3276 Models 1, 2, 3, 4, BSC or SDLC
Models 11, 12, 13, 14 SDLC protocol

Control Unit Display Station

Models:

1 - 960-character buffer/BSC
11- 960-character buffer/SDLC
2 - 1920-character buffer/BSC
12- 1920-character buffer/SDLC
3 - 2560-character buffer/BSC
13- 2560-character buffer/SDLC
4 - 3440-character buffer/BSC
14- 3440-character buffer/SDLC

Features:
Remote small cluster - up to 8 devices attached
Lease line facility up to 7200 bps (BSC) or 9600 bps (SDLC). Public switched network up to 4800 bps.

3277 Batch Terminal
3278 Display Station

Models:

1 - 960-character buffer (12x80)
2 -1920-character buffer (24x80)
3 -2560-character buffer (32x80)
4 -3340-character buffer (43x80)
5 -3564-character buffer (27x132)

Features:
Attaches to 3274 and 3276. Model 5 not attachable to 3274B or 3276.

3279 Color Display Station

Models:

2A - 1920-character buffer (24x80) Four colors.
3A - 2560-character buffer (32x80) Four colors.
2B - 1920-character buffer (24x80) Seven colors.
3B - 2560-character buffer (32x80) Seven colors.

3287 Printer

Models:
1 - 80 cps, 132 print positions
2 - 120 cps, 132 print positions
11- 80 cps, 132 print positions
12- 120 cps, 132 print positions

Features:
Model 1 and 2 attachable to 3271, 3272, 3274, 3276,

3289 Line Printer, up to 120 cps
3290 Plasma Display Information Panel
3299 Multiplexer
3330 Disk Storage Unit
3333 Disk Storage Unit
3370 Disk Storage Unit
3375 Disk Storage Unit
3540 Diskette Input/Output Unit
3600 Banking System
3601 Finance Controller
3650 Retail System
3660 Supermarket System
3694 Document Processor
3701 EIA/CCITT Interface
3704

Communications Controller. Withdrawn from production in August 1978. Contains 64K bytes of storage and can handle up to 34 half-duplex lines.

3705

Communications controller that provides for the physical management of the communcatons network. It can be locally attached or can operate as a remote communications controller. The 3705 has a maximum storage capacity of 512K memory which is used to store the control program and to buffer incoming and outgoing traffic. The control program can be NCP (Network Control Program) or EP (Emulation Program-270X emulation). Provides attachment facilities for asynchronous, binary synchronous (BSC), and synchronous data link control (SDLC) protocols.
Can handle up to 352 lines.

3725 Communications Controller
3736 Daisy Wheel Printer
3740 8" Diskette Format
3776 Batch/Cluster Controller/workstation
3777 Batch Terminal
3790 Programmable Terminal
3800 Printer Model 1 and 3
3830 Storage Control Unit Models 2 and 3
3851 Mass Storage Facility
3880 Storage Control Unit
3865 Model 1 (2400/1200 bps) modem
3864 Model 1 (4800/1200 bps) modem
3865 Model 1 and 2 (9600/4800 bps) modem
3872 Model 1 (2400/1200 bps) modem

4321

Minicomputer - Pre-configured entry-level 4300 processor with 1MB processor storage.
Display/Printer Adapter which permits attachment of 3278 Model 2A or 3279 Model 2C plus up to 15 additional A-type devices such as 3262 line 1C and 2C, or 3289 line printers Model 4.

4331

Mid-size minicomputer processor with 1-4MB processor storage. One standard byte multiplexor channel. One standard block multiplexor channel which can support up to 128 devices.
Console/printer adapter for up to 15 A-type printers/displays.

4341

High performance and high function System/370-compatible 4300 processor with 2-16MB processor storage. 2 block multiplexor channels.
Console/printer adapter.

4381 4-16 Megabytes, 12 I/O channels, air cooling
4701 Finance Controller
4962 Disk Storage Unit
4963 Disk Subsystem
4964 Diskette unit
4969 Magnetic Tape Subsystem
497X Printers
497X Display Stations
4987 Programmable Communications Subsystem
5110 Desktop Computer
5120 Desktop Computer
5150 IBM PC
5160 IBM PC XT
5203 Printer Model 3
5210 Daisy wheel printer
5211 Line Printers up to 300 lpm
5213 Printer
5224 Printers Model 1 - 140 lpm, Model 2 - 240 lpm
5225 Printers

Model 1 - 280 lpm Model 2 - 400 lpm,
Model 3 - 490 lpm Model 4 - 560 lpm

5234 Time Entry Station
5235 Data Entry Station
5251 -11 Display Station
5251 -12 Cluster Controller/display terminal
5252 Dual Display Station

5256 Printers

Model 1- 40cps, Model 2- 80 cps, Model 3- 120 cps

5280 Distributed Data System
530X Workstation Controller
5500 Modem 1200 bps, Nonswitched
550X Modem 1200 bps, Switched
5520 Administrative System
564X Modem 2400 bps
574X Modem 4800 bps
5798-RHE System 38 Front End Processor - Software
6670 Information Distributor
7426 Terminal Interface Unit - Protocol Converter
7850 Teletypewriter Adpater
81XX Distributed processing computer series

8130
8140
8150

9000 Instrumentation System 68000 - Xenix

Reading List - Synchronous Products

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Box 880 Cochituate Road
Framingham, MA 01701

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McGraw-Hill
1221 Avenue of the Americas
New York, NY 10020

Data Decisions
20 Brace Road
Cherry Hill, NJ 08034

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Kenneth Sherman
Reston 1981

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Martin Sayer
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Joe Campbell
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James Martin
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